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Antibody for diagnosing and treating neuropsychiatric diseases, in particular schizophrenia, depression and bipolar affective disorders.

Patent Claims:

1. Antibody for diagnosis or treatment of neuropsychiatric diseases, **characterised in that** the antibody recognizes misfolded proteins that can be assigned specifically to one of the diseases.

2. Antibody according to Claim 1, **characterized in that** the disease is schizophrenia.

3. Antibody according to Claim 1, **characterized in that** the disease is depression.

4. Antibody according to Claim 1, **characterized in that** the disease is a bipolar affective disorder.

5. Antibody according to any one of the Claims 1-4, **characterized in that** the antibody recognizes misfolded proteins that are specific for multiple diseases, whereby the assignment to a disease can be made by means of further properties of the protein and/or by means of its origin.

6. Antibody according to any one of the Claims 1-5, **characterized in that** it is obtained by immunization of suitable animals with purified brain fractions of patients afflicted by a neuropsychiatric disease, whereby steps that effect an enrichment of misfolded proteins are provided in the purification.

7. Antibody according to any one of the Claims 1-6, **characterized in that** a purification step with ionic detergents is provided in the purification.

8. Antibody according to any one of the Claims 1-7, **characterized in that** the purification step is carried out at 0-10 °C.

9. Antibody according to any one of the Claims 1-8, **characterized in that** the ionic detergent used in the purification step is used at a concentration between 0.2 and 2%.

10. Antibody according to any one of the Claims 1-9, **characterized in that** the ionic detergent used in the purification is sarcosyl.

11. Antibody according to any one of the Claims 1-10, **characterized in that** the purification step with an ionic detergent comprises an ultracentrifugation step at at least 100,000 x g.

12. Antibody according to any one of the Claims 1-11, **characterized in that** a purification step with ß-sheet-binding substances such as Congo red, thioflavine or ß-sheet-binding peptides is provided in the purification, wherein these substances or peptides may be immobilized, if applicable.

13. Antibody according to any one of the Claims 1-12, **characterized in that** a protease digestion step at a temperature of 0-10°C is provided in the purification.

14. Antibody according to any one of the Claims 1-13, **characterized in that** the antibody is a monoclonal antibody.

15. Antibody according to any one of the Claims 1-14, **characterized in that** the antibody is a conformation-specific monoclonal antibody.

16. Antibody according to any one of the Claims 1-15, **characterized in that** the antibody is a recombinant antibody.

17. Antibody according to any one of the Claims 1-16, **characterized in that** the antibody is a blood-brain barrier-crossing antibody.

18. Antibody according to any one of the Claims 1-17, **characterized in that** the antibody is a chimeric or humanized antibody.

19. Antibody according to any one of the Claims 1-18, **characterized in that** the antibody is an antibody fragment.

20. Antibody according to any one of the Claims 1-19, **characterized in that** the antibody is coupled to a pharmaceutically active substance.

21. Antibody according to any one of the Claims 1-20, **characterized in that** the antibody is coupled to an isotope or a radioactive labeled molecule.

22. Antibody termed 7B2 that can be produced by hybridoma cells that are deposited under the number, DSM ACC2713, for diagnosis or treatment

of diseases, in particular of neuropsychiatric diseases, according to any one of the Claims 1-4.

23. Antibody termed 9C9 that can be produced by hybridoma cells that are deposited under the number, DSM ACC2714, for diagnosis or treatment of diseases, in particular of neuropsychiatric diseases, according to any one of the Claims 1-4.

24. Method for diagnosis of neuropsychiatric diseases according to Claim 1-4 by means of antibodies that bind to neuropsychiatric disease-specific proteins, in which method

a) the antibodies are contacted with a tissue or body fluid sample of a patient,

b) antibody-protein complexes thus formed, if any, are detected, and

c) the presence, if applicable, of antibody-protein complexes is considered to be a positive finding for a neuropsychiatric disease,

characterised in that

d) an antibody according to any one of the Claims 1-23 is used in the method.

25. Method according to Claim 24, characterized in that the presence of antibody-protein complexes is detected by means of ELISA, Western blotting or immuno-coupled fluorescence methods.

26. Method according to any one of the Claims 24 or 25, **characterized in that** the positive finding for a neuropsychiatric disease is a diagnosed predisposition and/or a positive diagnosis for one of the diseases according to any one of the Claims 1-4.

27. Method according to any one of the Claims 24-26, **characterized in that** the body fluid sample to be tested is liquor, urine, blood or serum.

28. Use of antibodies according to any one of the Claims 1-24 for producing a pharmaceutical preparation that can be administered to the patient, in particular in a blood-brain barrier-crossing form, for treatment of neuropsychiatric diseases according to any one of the Claims 1-4.

29. Use according to Claim 28, **characterized in that** the antibodies are coupled to pharmaceutically active substances.

30. Use according to Claim 28, **characterized in that** the antibodies are coupled to isotopes or radioactively labeled molecules.

31. Use of small-molecule, blood-brain barrier-crossing agents that can be administered to the patient, for producing a pharmaceutical composition that can be administered to a patient in a blood-brain barrier-crossing form, for treatment of neuropsychiatric diseases according to any one of the Claims 2-4, **characterized in that** the agents recognize the same surface structures as the antibodies according to any one of the Claims 1-23.

32. Use according to Claim 31, **characterized in that** the small-molecule agents are organic molecules that bind specifically to epitopes that are recognized by antibodies according to any one of the Claims 1-23.

33. Use according to any one of the Claims 31 or 32, in which the agents comprise multiple ligands that are connected to each other by spacers, and said ligands each bind specifically to various, non-overlapping epitopes that are recognized by antibodies according to any one of the Claims 1-23.

34. Use of immunogenic substances that elicit an immune response such that the immune system of a patient forms antibodies against misfolded proteins according to Claim 1, for producing a pharmaceutical composition that can be administered to a patient in a blood-brain barrier-crossing form, for treatment of neuropsychiatric diseases according to any one of the Claims 1-4.

35. Use according to Claim 34, **characterized in that** the immunogenic substances are misfolded proteins or fragments that can be assigned to one of the diseases according to Claims 1-4.